CLAIMS

1. In a packet data communication system, a header compression method comprising the steps of:

providing by a transmitting unit a Van Jacobson TCP/IP compressor/decompressor;

generating by the transmitting unit a new TCP header; and

sending by the transmitting unit the new TCP header to/from the Van Jacobson compressor/decompressor as a unidirectional data transfer.

2. In a packet data communication system, a header compression method as claimed in claim 1, wherein there is further included steps of:

determining whether a data packet is a first data packet; and

if the data packet is not the first data packet, performing by the transmitting unit the step of sending the new TCP header.

3. In a packet data communication system, a header compression method as claimed in claim 2, wherein there is further included a step of setting by the transmitting unit a predetermined bit pattern in the first byte of the new TCP header to indicate the unidirectional data transfer.

4. In a packet data communication system, a header compression method as claimed in claim 2, wherein there is further included a step of providing by the transmitting unit a connection identification in the new TCP header.

5. In a packet data communication system, a header compression method as claimed in claim 2, wherein there is further included a step of providing by the transmitting unit a TCP checksum in the new TCP header.

6. In a packet data communication system, a header compression method as claimed in claim 5, wherein there is

further included a step of providing by the transmitting unit a UDP checksum in place of the TCP checksum in the new TCP header.

7. In a packet data communication system, a header compression method as claimed in claim 2, wherein there is further included a step of compressing by the transmitting unit a UDP header and a RTP header.

8. In a packet data communication system, a header compression method as claimed in claim 2, wherein if the data packet is the first data packet, there is further included a step of sending by the transmitting unit a complete UDP header for a first data packet.

9. In a packet data communication system, a header compression method as claimed in claim 8, wherein there is further included a step of sending by the transmitting unit a complete RTP header for a first data packet.

10. In a packet data communication system, a header compression method as claimed in claim 8, wherein there is further included a step of sending by the transmitting unit a complete TCP/IP header for a first data packet.

11. In a packet data communication system, a header compression method as claimed in claim 1, wherein there is further included steps of:

determining whether a data packet is a first data packet; and

if the data packet is the first data packet, storing by a receiving unit information of a UDP header.

12. In a packet data communication system, a header compression method as claimed in claim 11, wherein there is further included a step of storing by the receiving unit information of a RTP header.

13. In a packet data communication system, a header compression method as claimed in claim 11, wherein there is further included a step of storing by a receiving unit information of a TCP/IP header.

14. In a packet data communication system, a header compression method as claimed in claim 11, wherein there is further included a step of storing by the receiving unit information in an IP header.

15. In a packet data communication system, a header compression method as claimed in claim 11, wherein there is further included steps of:

determining whether a data packet is a first data packet; and

if the data packet is not the first data packet, receiving by a receiving unit the new TCP header and a compressed UDP header and RTP header.

16. In a packet data communication system, a header compression method as claimed in claim 15, wherein there is further included a step of regenerating the UDP header.

17. In a packet data communication system, a header compression method as claimed in claim 15, wherein there is further included a step of regenerating the RTP header.

18. In a packet data communication system, a header compression method as claimed in claim 15, wherein there is further included a step of regenerating the TCP/IP header.

19. In a packet data communication system, a header compression method as claimed in claim 15, wherein there is further included a step of discarding the new TCP/IP header.

20. In a packet data communication system, a header compression method as claimed in claim 1, wherein:

the transmitting unit is a mobile station; and

the receiving unit is a packet data service node.

21. In a packet data communication system, a header compression method as claimed in claim 1, wherein:

the transmitting unit is a packet data service node; and

the receiving unit is a mobile station.

22. In a packet data communication system, a header compression method as claimed in claim 1, wherein there is further included a step of concatenating by the transmitting unit a compressed RTP header and a compressed UDP header with the new TCP header.

23. In a packet data communication system, a header compression method as claimed in claim 1, wherein there is further included steps of:

determining by a packet data service node whether a data packet is a first data packet;

if the data packet is not the first data packet performing steps of:

receiving by the packet data service node an uncompressed TCP/IP header; and

sending by the packet data service node the new TCP/IP header.

24. In a packet data communication system, a header compression method as claimed in claim 23, wherein if the data packet is the first data packet there is further included steps of:

storing by the packet data service node the uncompressed TCP/IP header; and

sending by the packet data service node the new TCP/IP header.

25. In a packet data communication system, a header compression method as claimed in claim 1, wherein there is further included steps of:

determining by a packet data service node whether a data packet is a first data packet;

if the data packet is not the first data packet performing steps of:

receiving by the packet data service node the new TCP/IP header; and

regenerating by the packet data service node an uncompressed TCP/IP header.

26. In a packet data communication system, a header compression method as claimed in claim 25, wherein if the data packet is the first data packet there is further included steps of:

receiving by the packet data service node the uncompressed TCP/IP header; and

storing by the packet data service node the uncompressed TCP/IP header.

27. A data structure for a compressed TCP/IP header for a packet data communication system comprising a mask field including a predetermined bit pattern for indicating a unidirectional data transfer condition to a Van Jacobson header compressor/decompressor.

28. The data structure as claimed in claim 27, wherein there is further included a TCP checksum field.

29. The data structure as claimed in claim 27, wherein there is further included a connection identification field.